

Remarks

We hereby affirm the election of Group II, claims 48-58, for prosecution. We will not traverse the imposed restriction requirement.

We have amended the specification to address the objections to the drawings and specification which related to the reference number “20” in Fig. 2. We have amended the claims to address the 35 U.S.C. §112 rejections. Support for the use of “contaminants” in claim 48 may be found in the specification on page 6, line 16; support for the other claim amendments may be found within the claims themselves.

Turning to the merits of the invention, Applicants have discovered and claimed a unique device for treating the atmosphere. The device utilizes a catalyzed outer surface of a motor vehicle component to convert atmospheric pollutants to less harmful materials. Importantly, a porous yet protective layer of carbon overcoats the catalyst. The porous carbon overcoat adsorbs catalyst-degrading contaminants while still allowing atmospheric pollutants to contact the catalyst, thereby improving catalyst performance.

Regarding the rejection of the claims under 35 U.S.C. §103(a), we respectfully submit that the claims 48, 53-54 and 56-58 define an invention that is non-obvious over Patil et al. (U.S. Pat. No. 5,125,231, hereinafter “Patil”) in view of Abe et al. (U.S. Patent No. 5,538,697, hereinafter “Abe”) and, for claims 49-52 and 55, further in view of Hoke et al. (WO 98/02235, hereinafter “Hoke”). The primary reference Patil and the secondary reference Abe, which disclose catalytic converter systems, fail to teach or suggest a device that utilizes the outer surface of a motor vehicle component as required in Applicants’ claimed invention. The “outer surface of a motor vehicle component” has a specialized meaning in the present application: “outer surface” means “air side,” i.e., a surface exposed to the “atmosphere” (see page 4, lines 20-25 of the specification; see also page 5, lines 10-11 for the definition of “atmosphere” used in the present invention – “the mass of air surrounding the earth”). In contrast, catalytic converter are exposed to exhaust gases generated by an internal combustion engine, not the atmosphere as contemplated in Applicants invention.

In addition, “outer surface of a motor vehicle component” as used in the present application refers to a component that has a function within the motor vehicle aside from the catalytic conversion of atmospheric pollutants. Applicants state:

Of particular importance to the present invention is the rendering of the outer surface of the substrate (e.g., radiator) capable of catalytically converting pollutants to less harmful materials *without adversely affecting the substrate and its function*. Thus, if the substrate is a radiator, the catalyst composition and protective material overcoat(s) shall not substantially adversely affect either the heat exchange properties of the physical integrity of the radiator.

See the specification on page 9, line 26 to page 10, line 2 (emphasis added). The catalytic converter systems of Patil and Abe have no function in the motor vehicle other than the catalytic conversion of harmful exhaust gas components, thus they do not contain the “outer surface of a motor vehicle component” required in the present claims.

We respectfully submit that the claims 48-54 and 56-58 are non-obvious over Hoke in view of Patil and Abe and, for claim 55, further in view of Hoke et al. (U.S. Pat. No. 6,190,627, hereinafter “Hoke II”). The Examiner acknowledges that Hoke fails to disclose the use of a protective, porous carbon overcoat as required in the present claims. However, the alleged incentive for combining the teaching of Patil, which discloses an exhaust gas treating system, with Hoke, which teaches an *atmosphere* treating system, does not support a rejection under §103(a). The Examiner states that it would be obvious to utilize the zeolite adsorbent overcoat of Patil on the apparatus of Hoke “to enhance the purification of the system during start up of the engine.” Purification of *engine exhaust* during start up is a challenge because the concentration of hydrocarbons in engine exhaust gas is higher during start up than during “normal” operation (see column 1, lines 42-60 of Patil). However, this spike in exhaust gas hydrocarbon concentration is essentially irrelevant with respect to the Hoke apparatus since it is utilized to treat *atmospheric air*, not engine exhaust. In other words, the Examiner inappropriately supports the hypothetical modification of the Hoke atmosphere treatment device by alleging an incentive to address an issue (hydrocarbon spike during engine start up) that arises only when treating engine exhaust.

In addition, there is no incentive to use the zeolite taught in Patil as an *overcoat to protect the catalyst* in Hoke as required in the present claims. Patil favors first applying a zeolite slurry to the substrate, then depositing a noble metal catalyst *on* the slurry coated substrate (see column

6, line 50 to column 7, line 28 of Patil). Clearly, the concept of *protecting* the noble metal catalyst with an adsorbent is not contemplated in Patil, thus the location of the zeolite relative to the catalyst and the exhaust stream is inconsequential. Likewise, Hoke fails to contemplate a adsorbent layer to protect the catalyst. Accordingly, one of ordinary skill in the art familiar with Hoke and Patil would have to discover on his own, like the Applicants did, the advantages of using a carbon adsorbent to protect the catalyst in an atmosphere treatment device.

We respectfully submit that the provisional double patenting rejection of claims 48-58 over published application US 2002/0055554 A1 is now moot in light of the issuance of the patent from that published application (U.S. Pat. No. 6,555,079 B2, issued on April 29, 2003). There is presently no double patenting because the issued '079 patent contains only claims that are materially distinguished from the presently pending claims: the '079 claims relate to a method of adsorbing atmospheric pollutants, as opposed to the presently claimed device for catalytically converting atmospheric pollutants.

We respectfully traverse the obviousness-type double patenting rejection of claims 48-58 over claims 9-19 of U.S. Pat. No. 6,190,627 in view of Abe. Again, Abe relates to a catalytic converter system for treating engine exhaust, while the '627 patent claims 9-19 relate to a device for treating the atmosphere. It cannot be assumed that a material suitable for treating exhaust gas would likewise be suitable as a protective overcoat for a catalyst used in the treatment of atmospheric air – application differences such as temperature, pollutant mix/concentration, and primary function (treatment of engine exhaust in Abe versus protection of underlying catalyst in the '627 patent) make such assumptions inappropriate. Accordingly, the requisite incentive for combining the references is missing, thereby rendering the double patenting rejection inappropriate.

In light of the foregoing, we respectfully submit that the pending claims, as amended, clearly define a novel and non-obvious invention that fully merits patent protection. We therefore respectfully request that the application be allowed in its entirety at an early date. If there remain any issues that the Examiner believes may be resolved by discussion, we cordially invite the Examiner to contact Applicant's undersigned representative by telephone at any convenient time.

This Amendment is being filed after five months but within six months of the January 16, 2003 mailing date of the Office action. Authorization to charge the fee required for a three-month extension for response, as well as any other fee deemed to be required, to deposit Account No. 05-1070 is hereby granted.

Respectfully submitted,



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